EXECUTIVE OFFICER'S REPORT

North Coast Regional Water Quality Control Board
May 18, 2017

Cyanobacteria and Harmful Algal Bloom Monitoring & Response Program Update

Katharine Carter

At the June 16, 2016 Regional Water Board meeting, staff provided a detailed presentation on this topic. This article reviews some of the information previously presented and provides an update on conditions in 2016.

Algae and cyanobacteria, commonly known as blue-green algae, are natural components of healthy marine and fresh water ecosystems; however under certain water quality conditions they can rapidly multiply causing nuisance blooms. When these blooms contain toxin-producing species they are termed harmful algal blooms (HABs) and can impact recreation in lakes and rivers, drinking water, and pose health risks for aquatic species, domestic animals, wildlife, and humans. When harmful algal blooms are dominated by cyanobacteria species they are termed cyanoHABs.

In recent years, there has been an increased frequency and severity of cyanoHABs around the world, including the North Coast Region. In order to fulfill the current need to manage cyanoHABs through improved monitoring, assessment, and increased educational outreach, the North Coast Regional Water Quality Control Board (Regional Water Board) established the Cyanobacteria and Harmful Algal Bloom Monitoring & Response Program (CyanoHAB program) in early 2016.

Over the last year CyanoHAB program staff have focused on several areas of program development: 1) participation in statewide HABs efforts that will benefit the Regional Water Board program, 2) education and outreach, 3) building partnerships for HABs tracking and response, and 4) monitoring and data assessment in those waterbodies within the North Coast Region that have a history of cyanoHABs. This article will focus on the statewide guidance for monitoring HABs and a summary of bloom conditions and findings from monitoring programs conducted in 2016 in the Klamath River, Russian River, Eel River, and South Fork Eel River.

Statewide HAB Efforts:

Regional Water Board staff are active participants in the development of the "My Water Quality: Are harmful algal blooms affecting our waters?" webpage and in the California Cyanobacteria and Harmful Algal Bloom Network (CCHAB), which has drafted statewide guidance for monitoring HABs and posting/de-posting of public health alert signs when HABs occur. When cyanobacteria toxin (cyanotoxin) levels reach the thresholds shown below, it triggers the posting of a public health alert sign ranging from "Caution" (HABs may be present) to "Danger" (closure of a waterbody to recreation). Regional Water Board staff have been working with those monitoring and responding to HABs in the North Coast Region to ensure that all entities are utilizing the guidance and signs, so that there is consistency in public health alerts throughout the Region.

Table 1. CyanoHAB Trigger Levels for Human Health
DRAFT

	Caution Action Trigger	Warning TIER I	Danger TIER II
Primary Triggers [a]			
Total Microcystins [b]	**0.8** µg/L	**6** µg/L	**20** µg/L
Anatoxin-a	**Detection** [c]	**20** µg/L	**90** µg/L
Cylindrospermopsin	**1** µg/L	**4** µg/L	**17** µg/L
Secondary Triggers			
Cell Density (*Toxin producers*)	**4,000** cells/mL	--	--
Site Specific Indicators of Cyanobacteria	Blooms, scums, mats, etc.	--	--

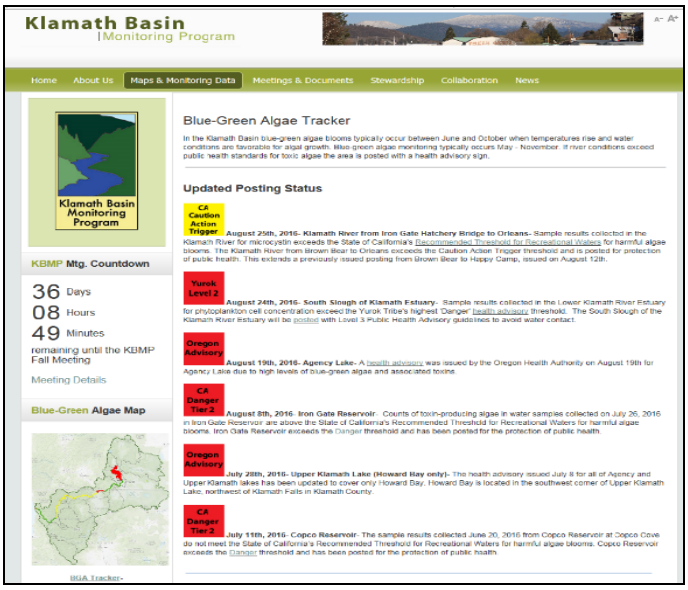
a. The primary triggers are met when ANY toxin exceeds criteria
b. Microcystins refers to the sum of all measured microcystin variants. (See Box 3)
c. Must use an analytical method that detects ≤ 1ug/L Anatoxin-a

CyanoHAB Triggers for Posting/ Deposting Public Health Alert Signs

Klamath River:

Monitoring of cyanoHABs in the Klamath River has been occurring for over 10 years. Copco and Iron Gate Reservoirs regularly experience cyanoHABs which produce a liver toxin, microcystin, that can be harmful to humans and animals. As water is released from the reservoirs cyanobacteria cells and their toxins can be carried into the Klamath River and can be detected downstream as far as the estuary. Portions of the Klamath River are on the Clean Water Act Section 303(d) List of Impaired Waters for microcystin and a Total Maximum Daily Load has been developed for this waterbody to address the causes of cyanoHABs and their toxins.

The Klamath River monitoring and reporting partnership is carried out by members of the Yurok and Karuk Tribes, PacifiCorp, the US Environmental Protection Agency, the US Forest Service, and the Regional Water Board under the umbrella of the Klamath Basin Monitoring Program (KBMP). Monitoring results and public health alerts are shared with the public via KBMPs blue-green algae tracker webpage (http://kbmp.net/bga).

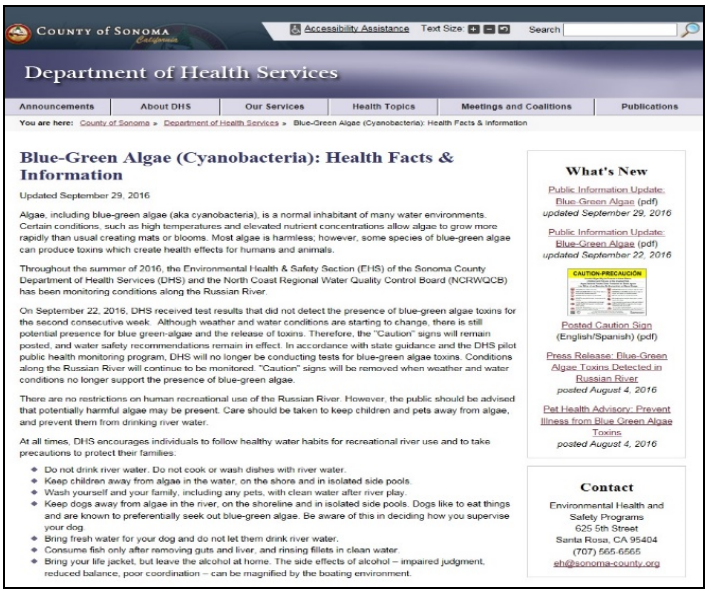


Klamath Blue-Green Algae Tracker Website (September 2016).

During 2016, cyanotoxins were detected in the reservoirs and Klamath River and public health alert signs were posted from June to December on the reservoirs and from July to December on the mainstem Klamath River. Cyanotoxin levels in the reservoirs triggered the posting of Danger public health alert signs that closed these water bodies to recreation, while cyanotoxin levels in the mainstem Klamath River resulted in posting Caution signs.

Russian River:

After reports of dog illnesses and deaths during the summer of 2015, the Regional Water Board worked with partners to build a CyanoHAB tracking partnership in the Russian River. The Russian River monitoring and reporting partnership is carried out by members of the Sonoma County Department of Health Services (DHS), Sonoma County Water Agency, and the Regional Water Board. Monitoring results and public health alerts are shared with the public via the Sonoma County DHS blue-green algae health facts and information webpage (http://www.sonoma-county.org/health/services/bluegreen.asp).



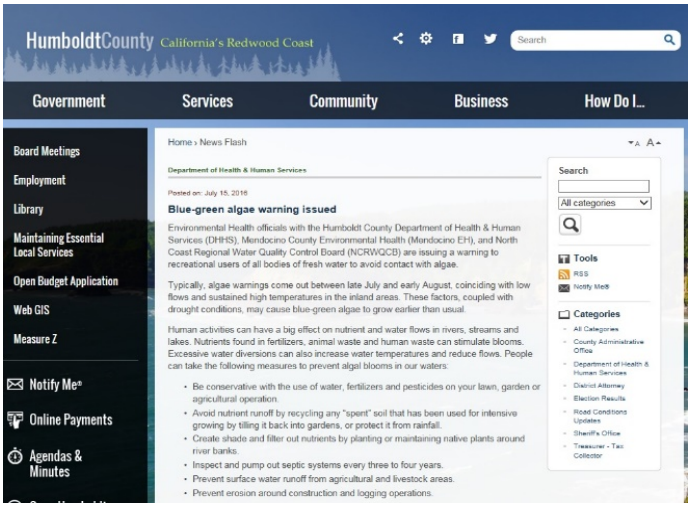
Sonoma County DHS Blue-Green Algae Health Facts & Information Website (September 2016).

Cyanotoxins were detected in Russian River water samples and Caution public health alert signs were posted in early August of 2016 from Cloverdale to Patterson Point. Sonoma County DHS and the Regional Water Board continued weekly monitoring until cyanotoxin levels decreased and river conditions no longer reflected cyanoHAB presence. Caution signs were removed from all locations on the river on October 11, 2016.

Eel & South Fork Eel River:

Since 2001, there have been reports of at least 10 dog deaths attributed to cyanoHABs on the mainstem Eel and South Fork Eel Rivers. During the spring of 2016, the Regional Water Board began building an Eel River watershed CyanoHAB monitoring and reporting partnership comprised of staff from Humboldt County Environmental Health, Mendocino County Environmental Health, and Lake County Public Health Departments.

Due to the history of dog deaths in the watershed, Humboldt and Mendocino Environmental Health and the Regional Water Board issued a press release in July 2016 to alert the public to the potential health risks of cyanoHABs. In addition to the press release, Humboldt County placed Caution public health advisory signs at river locations which had a history of cyanoHABs as a precautionary measure.



Press Release: Blue-Green Algae Warning Issued

The Regional Water Board conducted cyanotoxin monitoring at several locations in the Eel River watershed during the summer of 2016. Water sample results from mid-September in the Eel River at Outlet Creek reflected the presence of the liver toxin, microcystin, at levels which prompted Mendocino County to post Caution signs at this location. Regional Water Board staff continued monitoring, and by mid-October cyanotoxin levels had decreased, resulting in the removal of the Caution signs from the river.

This article has focused on the CyanoHAB programs monitoring results from water samples, however the work conducted by Regional Water Board staff includes collection of algae samples and the use of passive, time-integrated samplers. The results from these three sampling methods has raised staff's awareness that benthic blooms originating on the substrate of the Eel, South Fork Eel, and Russian Rivers are very different from planktonic blooms, such as those that originate in reservoirs. This topic will be discussed in more detail in the June issue of the Executive Officer's Report.

For additional information please contact Katharine Carter at 707-576-2290 or Katharine.Carter@waterboards.ca.gov

><((((º>
≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈
><((((º> ><((((º>

Russian River Watershed Association Environmental Column – April 2017

Capturing Rainwater for Household Use

This article was authored by Justin Bodell, of Sonoma County Resource Conservation District, on behalf of RRWA.

The rainy winter that we have experienced after a long drought has brought stormwater and rainwater management to the front of everyone's mind. We are challenged in California's Mediterranean climate by the yearly cycle of rainy and dry seasons, as well as periodic drought conditions. One of the ways that these challenges can be met is through small rainwater catchment systems that capture rainwater from rooftops in winter and store the water for future use.

Rainwater catchment systems have great potential benefit to residents and the environment. Since the Rainwater Catchment Act of 2012 was enacted, Californians have been allowed to use rainwater collected from the roofs of buildings for beneficial purposes. Rainwater catchment systems for **non-potable** uses, such as garden and landscape irrigation, have been built in Sonoma County for years. The Sonoma and Gold Ridge Resource Conservation Districts, through the Russian River Coho Partnership and related efforts, have worked with numerous landowners in rural areas to develop these systems to provide better water reliability for residents, while improving stream flows for endangered Coho salmon.

The County of Sonoma recently took another huge step toward water resource sustainability. In January 2017, the Permit and Resource Management Department adopted a new code section that, for the first time, gives Sonoma County homeowners the opportunity to legally build systems that capture rainwater for **potable** uses, such as drinking and cooking. The adoption of Appendix K of the California Plumbing Code now provides a framework for homeowners and businesses in unincorporated Sonoma County to use rainwater for potable purposes. Such systems would require a permit, approval of which would depend on many factors such as allowable roofing material; maintenance, inspection, and monitoring requirements; and minimum water quality requirements. Nonetheless, residents of unincorporated areas of Sonoma County now have a pathway to apply for permits to build those systems legally. If you live within city limits, check with your local planning/permitting department to find out if potable rainwater is allowed where you live.
While the costs of a rainwater catchment system can be high relative to more common water sources such as a well or municipality, the benefits of rainwater in some situations may outweigh the costs. A rainwater catchment system can provide a secure, reliable source of clean water. Some wells in water-scarce areas may not be able to keep up with demand, particularly in drought years. A rainwater catchment system can bridge the gap between water need and water availability.

The benefits of rainwater catchment to the environment are diverse. Most buildings, particularly in urban areas, direct rainwater from the roof into a stormwater sewer system which then drains into nearby streams and rivers. A rainwater catchment system bypasses that system by capturing rainwater and temporarily storing it to be released in the summer. This reduces the building's impact on the water cycle, which is helpful to the environment in several ways.

- Decreasing the amount of rainwater that enters the stormwater system can:
  - Reduce flooding;
  - Reduce the soil erosion that pollutes the water and hurts coho salmon and steelhead; and
  - Reduce stream channel incision that can adversely affect groundwater level.

- Increasing the amount, and changing the timing, of rainwater that soaks into the ground can:
  - Improve groundwater supply;
  - Improve streamflow in the summer, when it's critical for fish and wildlife survival; and
  - Contribute to reducing carbon in the atmosphere by promoting plant growth.

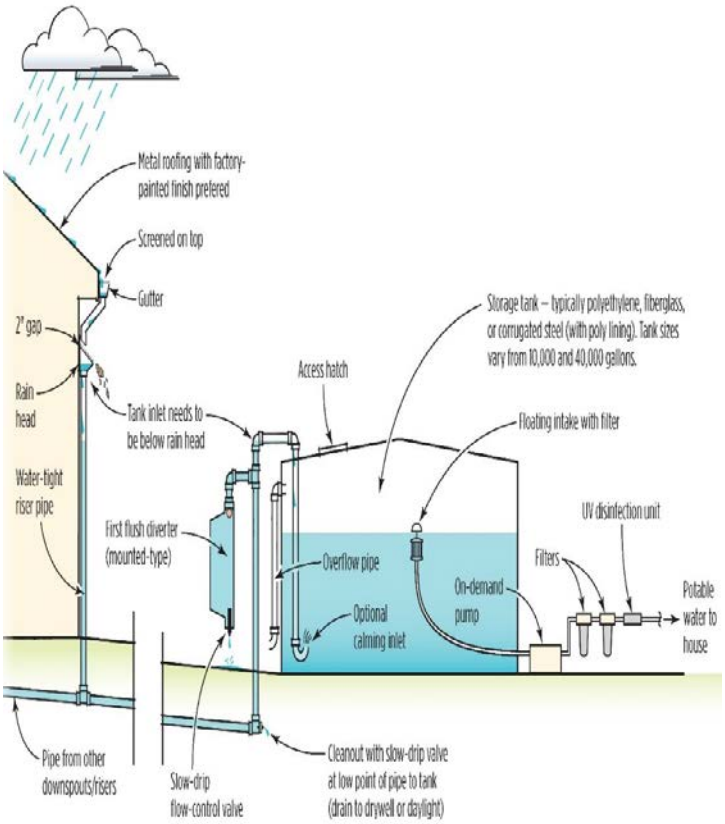
There are, of course, some very important considerations before deciding to build a rainwater catchment system for your home or business:

- How much water are you currently using? Are there any more ways to reduce the water you are already using? Answering this question is the start of figuring how much water storage you need.
- How much water can you collect from your roof? The size and configuration of your roof is another factor in determining the storage size. Use the following calculation to estimate the amount of water you can collect from your roof: Square footage of your roof x 0.63 x yearly rainfall in your area (in inches) = gallons you can collect annually (see Resources below)
- How much space is available to store water? Property size, zoning restrictions, and the terrain surrounding the building are determining factors in figuring out the size of the system.
- What is the cost/benefit ratio? Some homeowners pay a high cost to pump and treat groundwater, others must pay water trucks to bring them water in the summer. The costs that should be weighed against the potential benefit include: design of the system, permitting, construction, and maintenance. Depending on the location of the property, grant funding or rebates may be available to defray the cost of the system.

Resources:
To determine the average annual rainfall in your area, refer to this map created by the Sonoma County Water Agency:
http://www.sonoma-county.org/prmd/docs/landscape_ord/rainfall_map.pdf

For general rainwater catchment, water management information and a list of technical assistance resources, municipalities, contractors and consultants, and rainwater system suppliers, see the resource section of the Slow It. Spread It. Sink It. Store It! Guide to Beneficial Stormwater Management and Water Conservation Strategies:
http://www.sonomarcd.org/documents/Slow-it-Spread-it-Sink-it-Store-it.pdf

California Plumbing Code Appendix K: Potable Rainwater Catchment Systems
http://www.iapmo.org/2013%20California%20Plumbing%20Code/Appendices/Appendix%20K.pdf



RRWA
RUSSIAN RIVER WATERSHED ASSOCIATION

><((((º>
≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈ ≈
><((((º> ><((((º>

Enforcement Report for March, 2017 Executive Officer's Report.

Diana Henrioulle

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
2/16/17	City of Ferndale	ACLC	MMP	Discharger requested to enter settlement discussions

Comments: On February 16, 2017, the Assistant Executive Officer (AEO) issued Administrative Civil Liability Complaint No. R1-2017-0017 to Ferndale Wastewater Treatment Facility (WWTF) for violations subject to mandatory minimum penalties (MMPs). The proposed penalty is $30,000.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
2/22/17	City of Santa Rosa	NOV	NPDES Stormwater, Phase 1 MS4	In compliance

Comments: On February 22, 2017, the Point Source and Groundwater Protection Division Chief issued a Notice of Violation (NOV) to the city of Santa Rosa for failure to provide information requested during an earlier compliance inspection. The NOV directed the City to submit the information by March 22, 2017, and the information was provided.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
2/24/17	Rhys Vineyards	NOV/ 13267 Order	Unauthorized discharge to waters of the state	Ongoing

Comments: On February 24, 2017, the AEO issued an NOV/13267 Order to Rhys Vineyards for Water Code, Clean Water Act, and Basin Plan violations associated with placement and discharge of sediment into several tributaries to the South Fork Eel River and the Ten Mile River. The Discharger, without permits, cleared/graded approximately 15 acres of land with no apparent erosion/drainage controls, filled approximately 1650 feet of stream channel within this graded area, and constructed or reconstructed roads that crossed streams without culverts, bridges or any other forms of constructed stream crossing. The NOV/13267 order requests that the Discharger provide various reports and information about the site and to apply for appropriate permits for any activities that have resulted in and could result in the discharge of dredged or fill material to waters of the state. The reports are due no later than 45 days from the date of the Order. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
2/28/17	Mazzocco Vineyards, Inc	NOV	Non-compliance with WDR No. 88-109	Ongoing

Comments: On February 28, 2017, the Point Source & Groundwater Protection Division Chief issued an NOV to Mazzocco Vineyards and Winery Facility for failure to submit quarterly self-monitoring reports for 2015 and 2016 associated with WDR No. 88-109. The NOV requires submittal of the late reports by March 31, 2017, subsequently revised to May 1, 2017. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/7/17	City Ventures Homebuilding, Inc.	NOV/ 13267 Order	Unauthorized sediment discharges	Ongoing

Comments: On March 7, 2017, the AEO issued an NOV/13267 Order to City Ventures Homebuilding, Inc. for sediment discharges to Peterson Creek and Forestview Creek associated with construction activities at the Fox Hollow site (Site). The NOV/13267 Order directs the Discharger to submit reports and information to define the scope and nature of the discharge and efforts made by the Discharger over the course of construction to control or minimize waste discharges. The Discharger has provided the requested information. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/10/17	Redway CSD	NOV	Unauthorized discharge of sludge to waters of the state	Ongoing

Comments: On March 10, 2017, the Point Source & Groundwater Protection Division Chief issued an NOV to Redway Community Services District for failure to properly contain and manage their sludge disposal area at the wastewater treatment facility. The NOV directs the Discharger to submit a

preliminary work plan by August 1, 2017, to reevaluate existing sludge management practices and to outline initial tasks that will bring sludge handling, storage, and disposal practices into compliance. A final work plan is due by May 1, 2018, consistent with requirements in the WDR for the CSD.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/17/17	Marble Mountain Ranch	NOV	Second Notice of Violation of CAO	Ongoing

Comments: On March 17, 2017, the AEO issued a second NOV to Douglas and Heidi Cole, Marble Mountain Ranch, for failure to submit various technical reports and plans required by CAO No. R1-2016-0031. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/20/17	J.H. Ranch Mountain Resort	NOV	13267 Order	Ongoing

Comments: On March 20, 2017 the AEO issued an NOV to J.H. Ranch Mountain Resort for failing to provide all the information that had been requested under a previously issued 13267 Order, and for submitting inadequate monthly reports. The NOV directs the Discharger to submit the remaining required information by April 17, 2017, and to provide the information missing from the monthly monitoring reports by no later than March 31, 2017 . This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/22/17	Roseburg Forest Products Co.	NOV	WDRs for Timber Harvest Plans	In compliance

Comments: On March 22, 2017, the Nonpoint Source and Surface Water Protection Division Chief issued an NOV to Roseburg Forest Products Co, for failure to comply with the WDRs for Timber Harvest Plans (TPH) and for failure to implement proper Best Management Practices (BMPS). During an inspection by Cal Fire on January 27, 2017, the inspector reported observing heavy equipment tracks that indicated use of a wet ford on Beaughton Creek, a Class I watercourse. The use of this crossing violates the Erosion Control Plan included in the THP. Cal Fire also reported that in an inspection on February 2, 2017, the inspector observed log hauling and loading occurring in saturated soil conditions. The inspector reported observing wheel ruts and ponding on the road surface and a lack of erosion control features on the road in the area of active operations. Cal Fire reported that in a February 15, 2017, inspection, the inspector confirmed that the problems had been resolved.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/22/17	North Coast	NOV	WDRs for NTMP	Ongoing

	Timberlands LLC			

Comments: On March 22, 2017, the Nonpoint Source and Timber Harvest Division Chief issued an NOV to North Coast Timberlands LLC for violation of
WDRs for Non-Industrial Timber Management Plans (NTMP) for failure to identify and propose feasible measures to protect and restore the beneficial uses of water at sites within the Notice of Timber Operations (NTO) #6 that threaten to discharge sediment into waters of the State. During a compliance inspection, Regional Water Board staff observed several culverts and outlets that were not properly functioning or were not functioning at all. The NOV directs the Discharger to update the NTMP and submit a written description of the sites that are violating or have the potential to violate applicable water quality requirements or adversely impact beneficial uses, that are human caused, and that can be reasonably and feasibly be treated. The Discharger shall submit the above information, along with additional design and installation details of the proposed corrective actions, by May 1, 2017. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/24/17	Michael Griffin, Gayle Griffin, and Helen Lin	CAO	Unauthorized discharges to waters of the state and failure to obtain necessary permits	Ongoing

Comments: On March 23, 2017, the Executive Officer issued CAO No. R1-2017-0024 to Michael Griffin, Gayle Griffin, and Helen Lin for unauthorized discharges to waters of the state. The Dischargers constructed private roads lacking adequate stream crossings and erosion control or sediment containment features, and without authorization from federal, state, and local agencies, causing sediment discharges to waters of the state. The Dischargers also developed and/or used three clearings for cannabis cultivation and associated activities, and created or failed to address the direct discharge of household waste into Jones Creek and its tributaries through broken wastewater pipes. The CAO directs the Dischargers to submit various plans and reports, and to stabilize and control erosion and sediment discharges. One or more of the Dischargers has engaged Pacific Watershed Associates to assist with development and implementation of cleanup and restoration actions at the site, and work is reportedly underway. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
3/30/17	Sierra Pacific Industries	NOV/ 13267 Order	Unauthorized discharge and failure to implement GWDR required provisions	Ongoing

Comments: On March 30, 2017, the AEO issued an NOV/13267 Order to Sierra Pacific Industries for violations of the Basin Plan and General Waste Discharge Requirements for discharges related to timber harvest activities (GWDR) associated with unauthorized sediment discharges from appurtenant roads constructed and reconstructed on a timber harvest plan located approximately one mile east of the Trinity Alps Resort, south of Trinity Alps Road. The Order directs the Discharger to provide a plan to control the discharge of pollutants from the timber harvest plan area by May 15,

2017. The Order also directs the Discharger to submit monthly progress reports beginning April 28, 2017. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
4/4/17	City of Fortuna	ACLO	MMP and SSO	Ongoing

Comments: On April 4, 2017, the EO signed a Stipulated Administrative Civil Liability Order (Stipulated Order) No. R1-2017-0016, to the City of Fortuna WWTF for penalties in the amount of $90,573 for permit violations subject to Mandatory Minimum Penalties and for Sanitary Sewer Overflow (SSO) of 134,100 gallons to surface waters. The Stipulated Order requires payment of a portion of the penalty to the Cleanup and Abatement Account and indicates that the Discharger will apply the remainder of the penalty towards a Compliance Project (CP) intended to provide consistent, accurate effluent flow monitoring, in order to allow for proper dosing of chemicals in the chlorination and dechlorination processes.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
4/12/17	Humboldt County Public Works	NOV	Failure to comply with the Small MS4 General Permit	Ongoing

Comments: On April 12, 2017, the Point Source and Groundwater Protection Division Chief issued an NOV to Humboldt County Public Works for failure to implement requirements of the Small MS4 General Permit (Permit). The Permit requires the Permittee, within the first three years of the permit, to complete certain tasks with due dates for setting up and implementing the Permit. The Permittee has not completed several Year 1 and Year 2 tasks. The NOV directs the Permittee to prepare and submit a compliance schedule detailing the steps and duration needed to correct each of the alleged violations by May 12, 2017. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26, 2017
4/17/2017	Reservation Ranch	Denial of Extension	Unpermitted discharges of waste to waters of the state	Report past due

Comments: As previously reported, on January 9, 2017, the Assistant Executive Officer (AEO) issued a Notice of Violation /13267 order (Order) to Steven Westbrook, manager of Reservation Ranch for unauthorized discharges of waste to waters of the state, including manure, trash, animal carcasses, and dredge/fill material. The Order directed Mr. Westbrook to provide a technical report, including a hydrological report, wetlands delineation, historical information, and work plans, by April 6, 2017. On April 6, 2017, Mr. Westbrook requested a 6-month extension to the April 6 deadline. On April 20, 2017, the Executive Officer denied the extension because the request was not received at least 30 days prior to the deadline of April 6, 2017, and the justification provided did not demonstrate good cause. The denial letter included a recommendation that the Discharger contact Regional Water Board staff to discuss the 13267 Order, either in person or via teleconference.

Date Issued	Discharger	Action Type	Violation Type	Status as of April 26,

				2017
4/24/17	Kenneth & Darlene McCoy	NOV/ 13267 Order	Unauthorized discharge or potential to discharge waste and failure to enroll for coverage under the Cannabis order	Ongoing

Comments: On April 24, 2017, the AEO issued an NOV/13267 Order to Kenneth and Darlene McCoy for discharges and threatened discharges of waste to receiving waters associated with an improperly constructed domestic well, and for failure to enroll for coverage under Regional Water Board Order No. R1-2015-0023 *Waiver of Waste Discharge Requirements and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operation with Similar Environmental Effects* (Waiver). The NOV /13267 Order requires the Dischargers provide proof of enrollment under the Regional Water Board's Waiver or proof of discontinuation of cannabis cultivation and other activities with similar environmental impacts, a schedule and plan to seal the domestic well and to provide documentation when completed, and to submit quarterly monitoring reports. The first deliverable is due May 15, 2017. This matter is ongoing.

CALIFORNIA
Water Boards